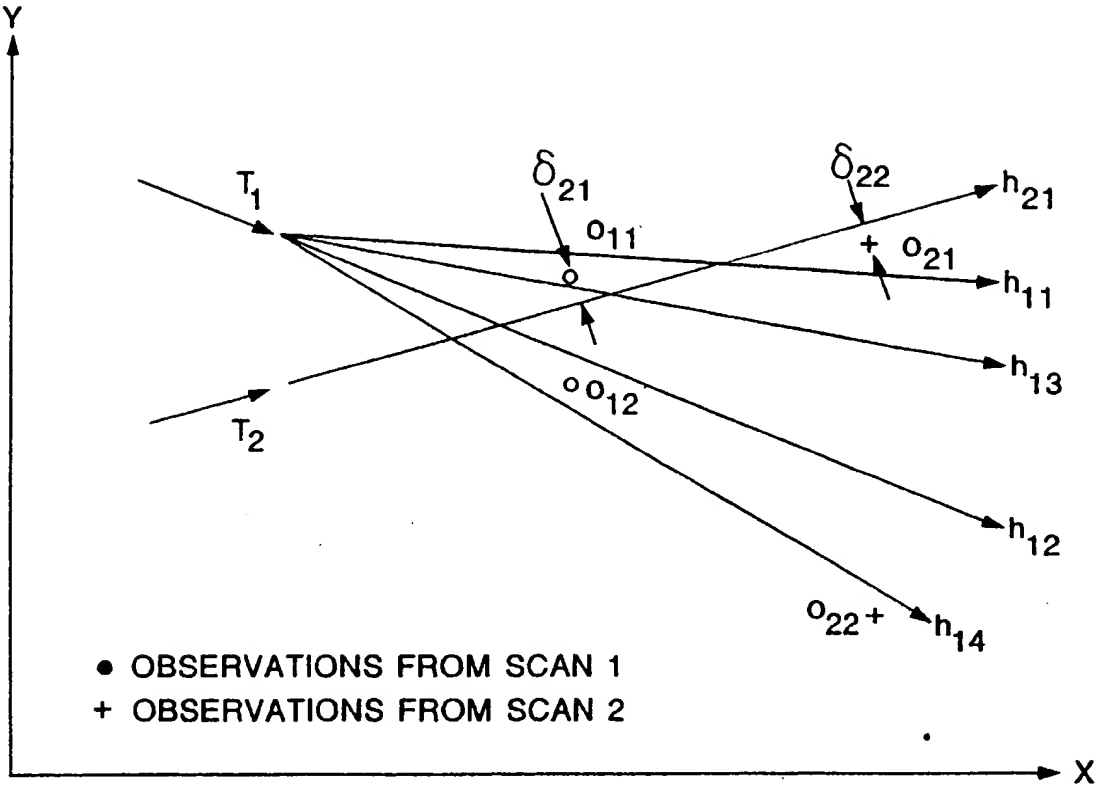

Fig. 1
Prior Art

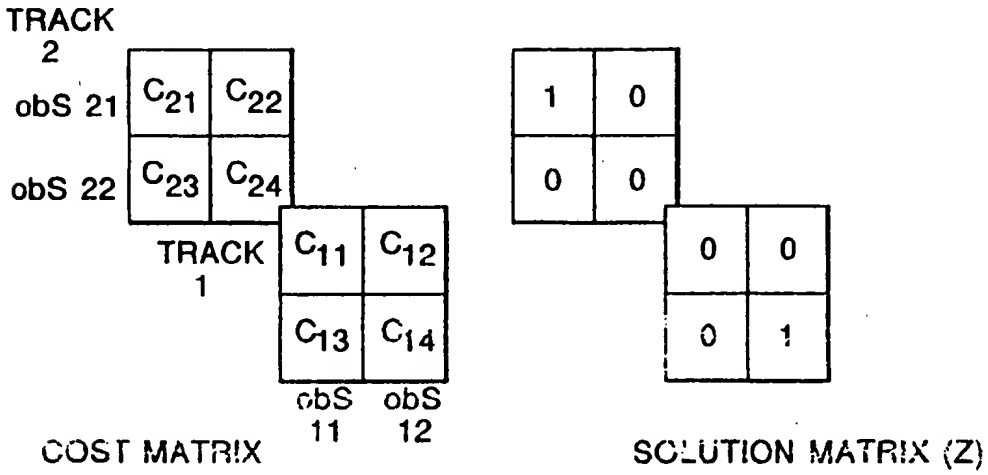

Fig. 2
Prior Art

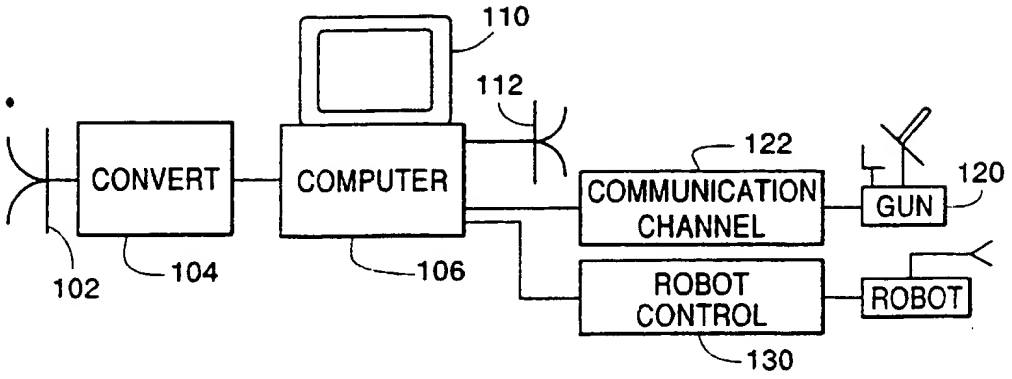
110
112
CONVERT
COMPUTER
122
COMMUNICATION CHANNEL
GUN
120
ROBOT CONTROL
ROBOT
102
104
106
130

Fig. 3

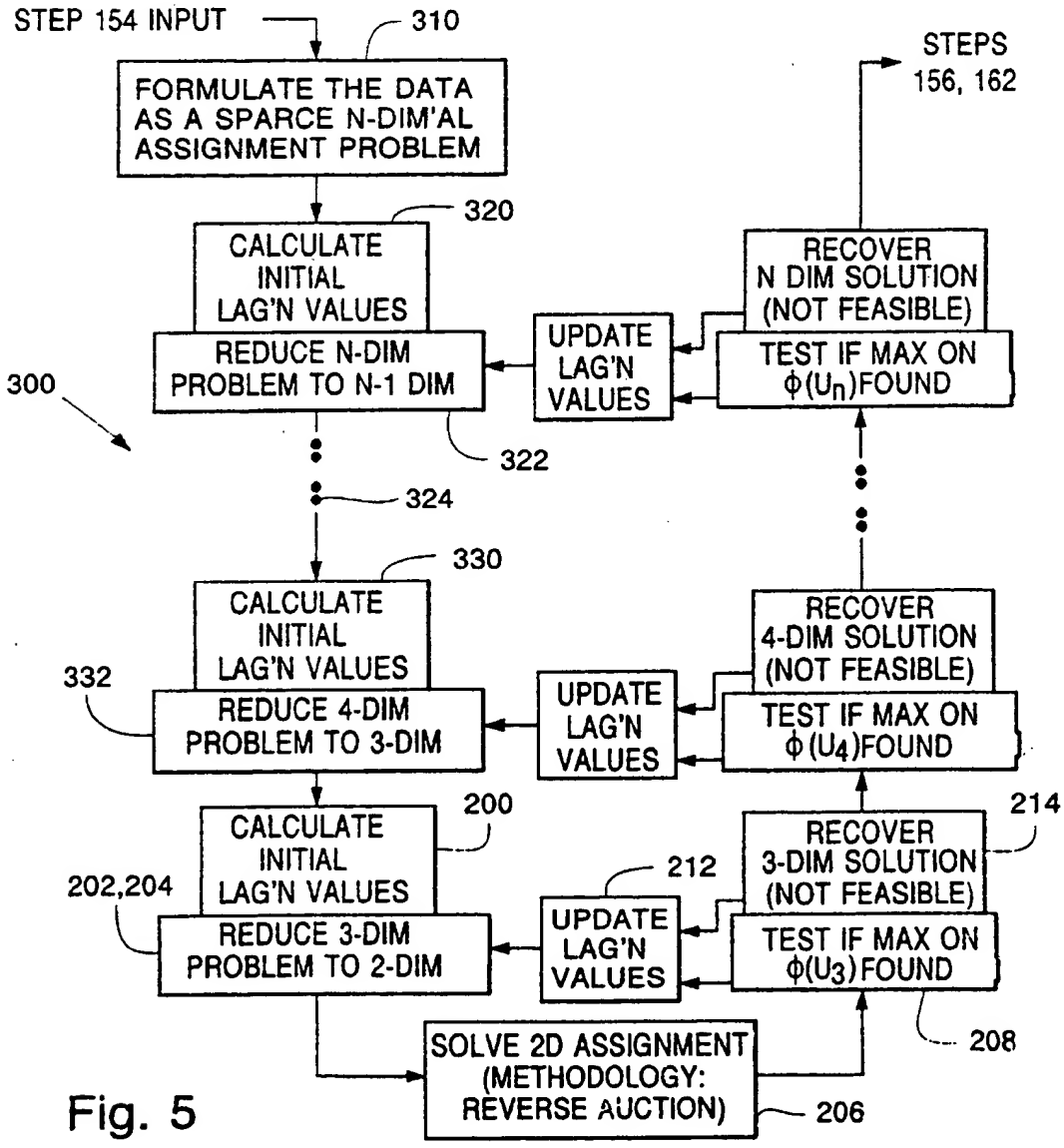
STEP 154 INPUT
310
FORMULATE THE DATA AS A SPARCE N-DIM'AL ASSIGNMENT PROBLEM
320
CALCULATE INITIAL LAG'N VALUES
REDUCE N-DIM PROBLEM TO N-1 DIM
UPDATE LAG'N VALUES
RECOVER N DIM SOLUTION (NOT FEASIBLE)
TEST IF MAX ON $\phi(U_n)$FOUND
STEPS 156, 162
300
322
324
330
CALCULATE INITIAL LAG'N VALUES
REDUCE 4-DIM PROBLEM TO 3-DIM
UPDATE LAG'N VALUES
RECOVER 4-DIM SOLUTION (NOT FEASIBLE)
TEST IF MAX ON $\phi(U_4)$FOUND
332
200
CALCULATE INITIAL LAG'N VALUES
REDUCE 3-DIM PROBLEM TO 2-DIM
212
UPDATE LAG'N VALUES
RECOVER 3-DIM SOLUTION (NOT FEASIBLE)
TEST IF MAX ON $\phi(U_3)$FOUND
214
202,204
208
SOLVE 2D ASSIGNMENT (METHODOLOGY: REVERSE AUCTION)
206

Fig. 5

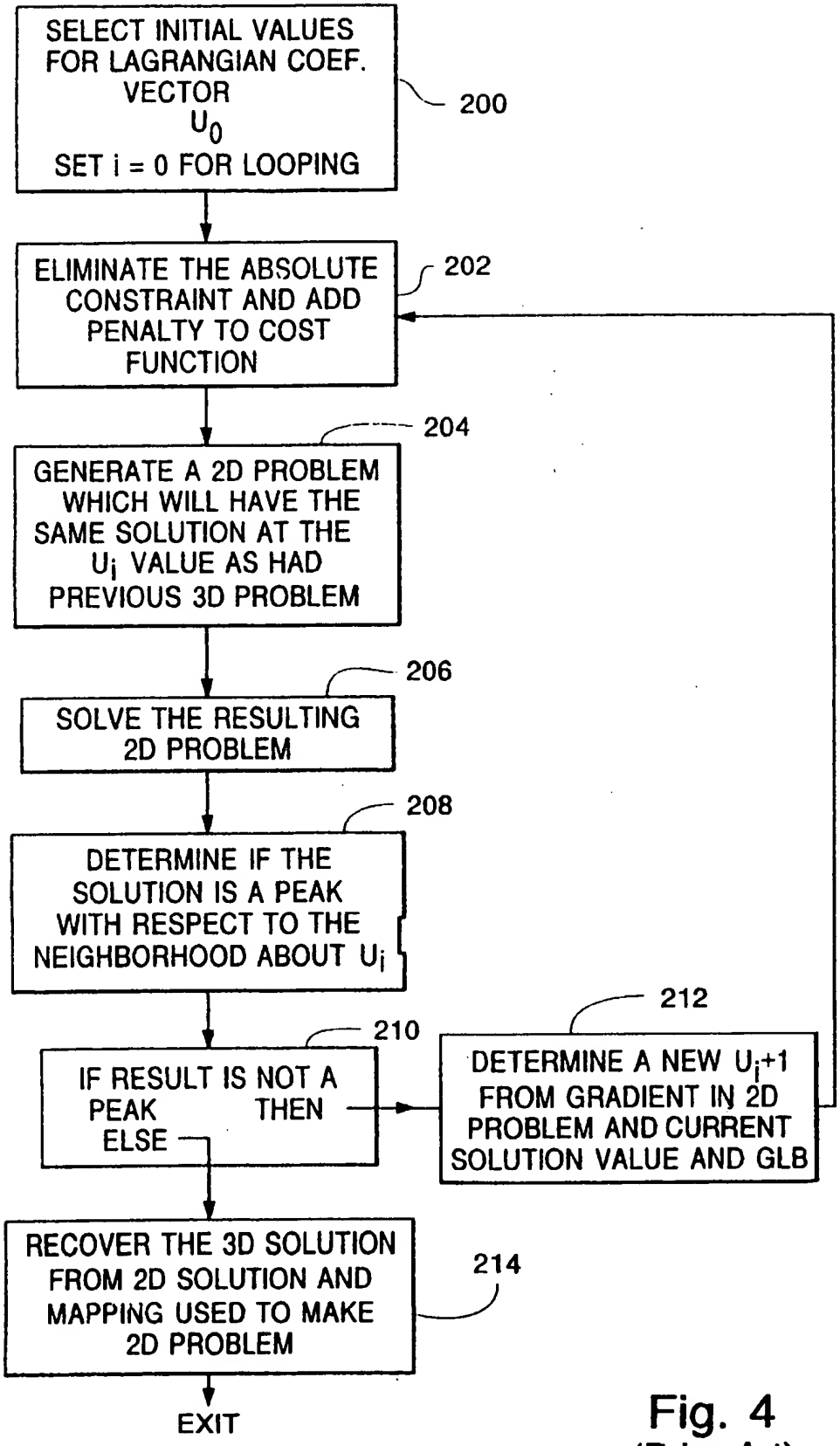

Fig. 4
(Prior Art)

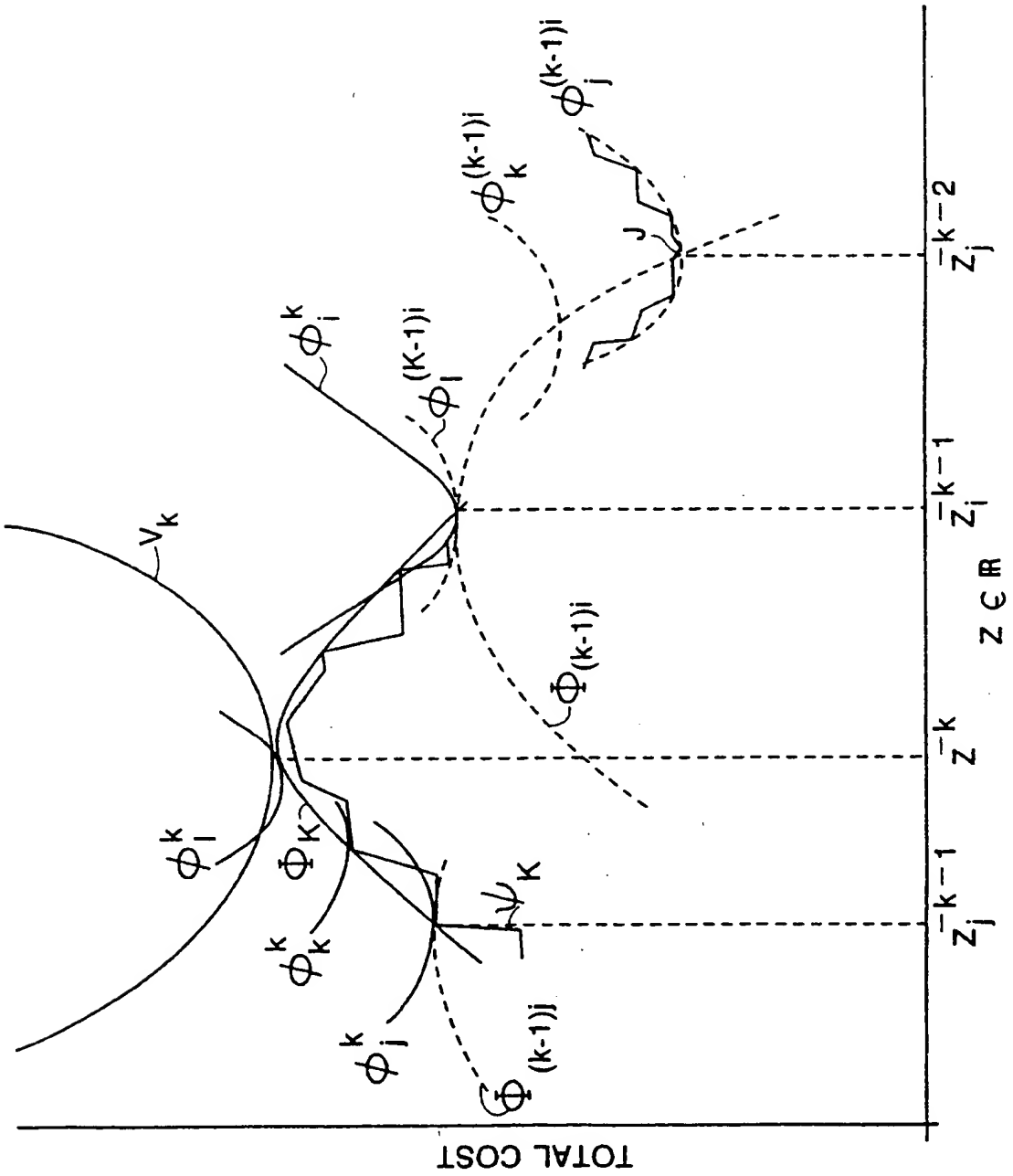
TOTAL COST
Z ∈ ℝ
$\bar{z}_j^{k-2}$
$\bar{z}_i^{k-1}$
$\bar{z}^k$
$\bar{z}_j^{k-1}$
V_k
ϕ_i^k
$\phi_I^{(K-1)i}$
$\phi_k^{(k-1)i}$
$\phi_j^{(k-1)i}$
J
$\Phi_{(k-1)i}$
ϕ_I^k
Φ_K
ϕ_k^k
ϕ_j^k
Ψ_K
$\Phi_{(k-1)j}$

Fig. 6

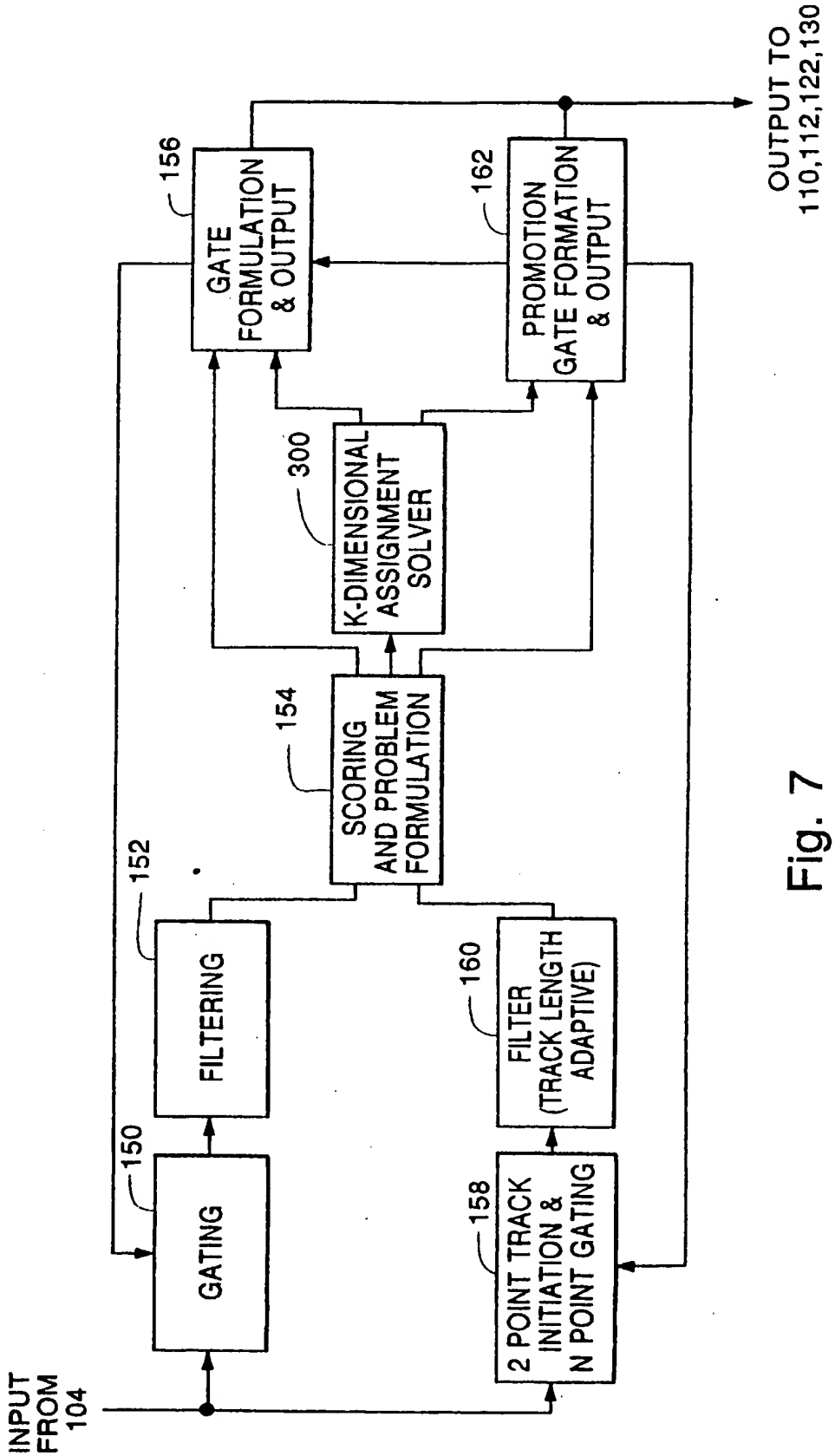
INPUT FROM 104
GATING
150
FILTERING
152
SCORING AND PROBLEM FORMULATION
154
K-DIMENSIONAL ASSIGNMENT SOLVER
300
GATE FORMULATION & OUTPUT
156
2 POINT TRACK INITIATION & N POINT GATING
158
FILTER (TRACK LENGTH ADAPTIVE)
160
PROMOTION GATE FORMATION & OUTPUT
162
OUTPUT TO 110,112,122,130

Fig. 7

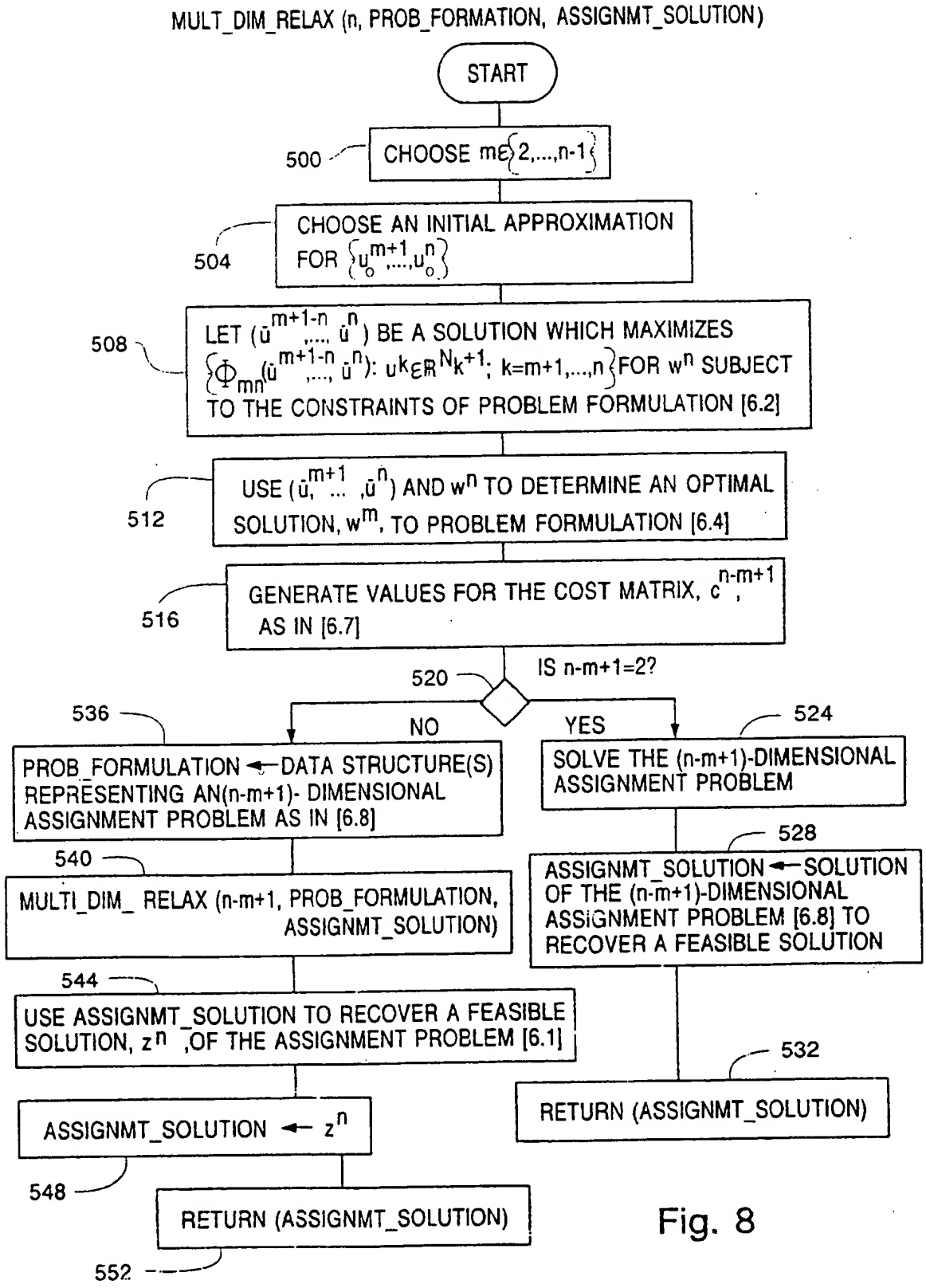
MULT_DIM_RELAX (n, PROB_FORMATION, ASSIGNMT_SOLUTION)
START
500
CHOOSE m∈{2,...,n-1}
504
CHOOSE AN INITIAL APPROXIMATION FOR $\{u_o^{m+1},...,u_o^n\}$
508
LET $(\bar{u}^{m+1-n}, ..., \bar{u}^n)$ BE A SOLUTION WHICH MAXIMIZES $\{\Phi_{mn}(\bar{u}^{m+1-n}, ..., \bar{u}^n): u^k \in R^{N_k+1}; k=m+1,...,n\}$ FOR w^n SUBJECT TO THE CONSTRAINTS OF PROBLEM FORMULATION [6.2]
512
USE $(\bar{u}^{m+1}, ..., \bar{u}^n)$ AND w^n TO DETERMINE AN OPTIMAL SOLUTION, w^m, TO PROBLEM FORMULATION [6.4]
516
GENERATE VALUES FOR THE COST MATRIX, c^{n-m+1}, AS IN [6.7]
520
IS n-m+1=2?
NO
YES
536
PROB_FORMULATION ← DATA STRUCTURE(S) REPRESENTING AN(n-m+1)- DIMENSIONAL ASSIGNMENT PROBLEM AS IN [6.8]
524
SOLVE THE (n-m+1)-DIMENSIONAL ASSIGNMENT PROBLEM
528
ASSIGNMT_SOLUTION ← SOLUTION OF THE (n-m+1)-DIMENSIONAL ASSIGNMENT PROBLEM [6.8] TO RECOVER A FEASIBLE SOLUTION
540
MULTI_DIM_ RELAX (n-m+1, PROB_FORMULATION, ASSIGNMT_SOLUTION)
544
USE ASSIGNMT_SOLUTION TO RECOVER A FEASIBLE SOLUTION, z^n, OF THE ASSIGNMENT PROBLEM [6.1]
532
RETURN (ASSIGNMT_SOLUTION)
ASSIGNMT_SOLUTION ← z^n
548
RETURN (ASSIGNMT_SOLUTION)
552

Fig. 8